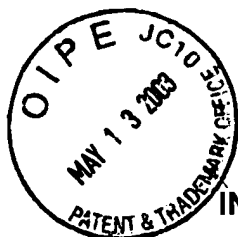


1772



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of: HAUSMANN et al.

CASE NO: AD6745 US NA

APPLICATION NO.: 09/923,621

GROUP ART UNIT: 1772

FILED: AUGUST 7, 2001

EXAMINER: AUGHENBAUGH, WALTER

FOR: **ACTIVE AMINE SCAVENGING FILM FOR  
FRESH FISH PACKAGING**

**AMENDMENT of AMENDMENT**

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

**RECEIVED**  
MAY 14 2003  
**GROUP 1700**

Sir:

In response to the "Notice of Non-Compliant Amendment" dated April 9, 2003, please amend the amendment dated March 23, 2003 and acknowledged as filed March 31, 2003 in the above-identified application by replacing the marked-up version of the replacement paragraphs as included as separate pages herein. The included separate pages now include page number and line for entry of the specification paragraphs.

Amendments to the Specification

Please amend the Specification as follows:

Using both the page and line numbers of the original specification and the paragraph number of US 2002/0106466 A1 as basis for identifying paragraphs, please replace the indicated paragraphs

Page 2, lines 29-35

B1 [0008] The present invention pertains to the discovery that a polymer film comprising a copolymer of ethylene with an  $\alpha,\beta$ -ethylenically unsaturated carboxylic acid having 3 to 8 carbon atoms, optionally having up to 99% of the carboxylic acid groups neutralized by metal ions, can be used to ~~absorb~~ adsorb odiferous compounds, particularly amines. The use of such polymer film is particularly useful in packages for packaging fish or other perishable food items to control odiferous compounds, particularly amines, generated by the fish or perishable food.

Page 3, lines 16-33

B2 [0011] In still another aspect, the present invention is a package useful for packaging fish or other perishable food items, the package comprising a multilayer polymer film having at least one layer comprising at least one polymer that removes volatile odiferous compounds from inside of the package, wherein the film additionally comprises active ingredients, which have as one of their properties the adsorption of amines. It has been found that surprisingly, when such active amine adsorbing ingredients are incorporated, the capability of the adsorbent polymer to adsorb the amine itself is reduced, particularly to a level at or below that level of amines that is generated by fish that is unfit for consumption. In this way, it is possible to remove objectionable amine odor (low levels) while at the same time retaining an indicator of dangerous deterioration of packaged food such as fish. That is, when the package design is adjusted as provided in this invention to only ~~absorb~~ adsorb up to a safe amount of amine and no more, the higher amine levels normally associated with dangerous deterioration of packaged foods such as fresh fish will not be ~~absorbed~~ adsorbed. As such, if there is dangerous deterioration, the amine odor will be evident when the package is opened providing an accurate warning. On the other hand, if there is no dangerous deterioration, the amine odor will not be present.

Page 4, lines 23-36

B3 [0014] The package of the invention comprises a multilayer film ~~that~~ which comprises at least one layer containing a specific ethylene copolymer with the capability of adsorbing the undesireous, in most of the cases bad smelling, components. More specifically this specific ethylene copolymer is a copolymer of ethylene with an  $\alpha,\beta$ -ethylenically unsaturated carboxylic acid having from 3 to 8 carbon atoms, said copolymer optionally having up to ~~90%~~ 99% of the carboxylic acid groups optionally neutralized by metal ions. Preferably the ethylene copolymer contains 1 to 50 weight percent (wt.%) of the acid co-monomer based on the weight of the ethylene copolymer, and more preferably from 2 to 19 wt.%. Preferred  $\alpha,\beta$ -ethylenically unsaturated acids contain 3 to 8 carbon atoms and particularly include acrylic acid, methacrylic acid and itaconic acid. The melt index of the ethylene copolymer, measured according to ASTM D 1238 @ 190 °C/2.16 kg, is preferably less than 30 g/10 min, and more preferably less than 20 g/10 min. The ethylene copolymer can be random or non-random, but random is preferred.

Page 6, lines 25-33

B4 [0023] The layers of the film may further comprise additives or active ingredients such as amine adsorbents. Amine adsorbents may include zeolites. When such active ~~absorbents~~ adsorbents are added, the capability for the polymer film of the present invention to adsorb amines from the head space can be reduced. As can be seen in the examples, the capacity to ~~absorb~~ adsorb amines seems to be higher and quicker when such other additives are not present in the ethylene copolymer. The agent preferably is included in an amount selected to control the ~~absorption~~ adsorption of odiferous compounds sufficiently to eliminate levels that are noisome but not indicative of dangerous deterioration of the food.

Page 9, lines 19-22

B5 [0039] The adsorption amount ( $\mu\text{g } 10 \text{ cm}^{-2}$ ) was calculated by determining the concentration decrease of the TMA inside the headspace glass vial. That is, by subtracting the residual amounts from the initial content after 24 hours and after 72 hours, ~~absorbed~~ adsorbed amounts were calculated and reported in Table V.

Page 10, lines 3-5

B6 [0040] As can be seen from Table V, the film structure of Control 1 contains only polymers that do not interact with amines in the structure. Therefore no amine adsorption is noted after 24 or ~~76~~ 72 hours.

Page 10, lines 6-13

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67 [0041] On the other hand, the film structure of Example 1 in which Ionomer 1 is contained as a sealant layer, clearly is effective in absorbing the amine. From Example 1A (active amine adsorber, Abscents® 3000, is added to the Ionomer in the structure), it can be seen that amine ~~absorption~~ adsorption by the film after 24 hours is comparable to that of the structure of Example 1 (same structure as in Example 1A other than for the addition of the amine adsorber). At 76 72 hours, however, it can be seen that ~~absorption~~ adsorption of amines is hindered when the active amine adsorber is added.

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Respectfully submitted,

A handwritten signature in cursive script, reading "Robert B. Stevenson".

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For

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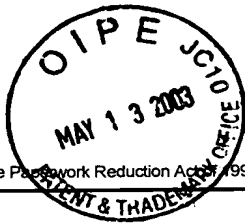
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Dated: May 9, 2003

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